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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,952	01/21/2005	Jiangron Qiu	3824-050246	2294
28289	7590	09/14/2006	EXAMINER	
THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219			LEE, JOHN D	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/521,952

Applicant(s)

QIU ET AL.

Examiner

John D. Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-14 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060710</u> . | 6) <input type="checkbox"/> Other: _____ |

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Applicant's communication, submitted on July 6, 2006, has been carefully studied by the Examiner. The arguments advanced therein, considered together with the amendments made to the claims, are persuasive and the rejection set forth in the previous Office action is hereby withdrawn. Specifically with respect to the Yamada reference (U.S. Patent 5,528,719, previously relied upon), it is agreed that the reference does not disclose or suggest the optical fiber array and manufacturing method of applicant's claims (the Examiner agrees with applicant's analysis of Yamada set forth in the July 6, 2006, amendment). In view of further search in this application, however, and the consequent discovery of a previously uncited prior art reference, a new rejection is set forth below for certain of the pending claims. This action is **not** made final.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9 and 10 are rejected under 35 U.S.C. § 102(b) as being clearly anticipated by U.S. Patent 6,240,235 to Uno et al. Uno et al discloses a fiber array for optical communication, comprising a substrate **82** for inserting optical fibers **86** therein, and a press plate **84** for pressing and fixing the inserted optical fibers, substrate **82** having a plurality of V-grooves into which the optical fibers are placed. See Figures 12(a) and 12(b). Table 1 of Uno et al clearly indicates that the accuracy of the center-to-center dimension between the grooves (the "pitch") is always less than applicant's claimed value of $\pm 0.5 \mu\text{m}$. The degree of parallelization in the groove length direction between adjacent grooves in the Uno et al device is also better than applicant's claimed

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“within ± 0.1 degree”. For evidence of this, see **EXAMPLE 21** of Uno et al. With the center-to-center dimensional accuracy between the grooves at various longitudinal locations being within $1\ \mu\text{m}$, and with the length of the groove-containing substrate being 4.5 mm (i.e. $4,500\ \mu\text{m}$), simple trigonometric calculation of the angle at maximum center-to-center deviation shows the angle to be extremely less than 1 degree. [The tangent of 1° is 0.0175, whereas the tangent of the calculated angle is only 0.00022].

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,240,235 to Uno et al. As noted in the rejection above, Uno et al discloses V-grooves for receiving the optical fibers. The use of other shaped grooves (e.g. semicircular grooves) is also well known and widely used in the art, however. The use of semicircular grooves in Uno et al would thus have been an obvious variation to the person of ordinary skill in the art. Although not shown in the reference, to have the press plate have corresponding grooves (correspondingly shaped), so that the optical fibers are *entirely* enclosed in grooves when the press plate is in place over the substrate, would have been an obvious extension of the Uno et al array, since the person of ordinary skill would realize that this would hold the fibers even more securely. Regarding claim 12, Uno et al does not disclose any of the specific materials set forth in the claim, but the glasses seen in Table 2 of the reference and the discussion in column 34 (lines 50-63) of the reference would make the use of any of the claimed glass materials obvious.

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Claims 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,240,235 to Uno et al in view of U.S. Patent 6,563,998 to Farah et al. Uno et al does not specifically disclose the use of laser machining to form the grooved fiber array. Precision molding is the disclosed formation method. Farah et al, however, is cited as evidence that laser machining (using pulsed femtosecond laser beams) is well known as a method for forming grooved optical fiber holding arrays. Since the precision achieved by laser machining is known to be high, and since precision is of paramount importance in Uno et al, the use of a method like that of Farah et al in forming the Uno et al device would have been obvious to a person of ordinary skill.

Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Neither Uno et al nor Farah et al disclose or suggest the combination of laser beam machining and etching in order to form a grooved optical fiber array.

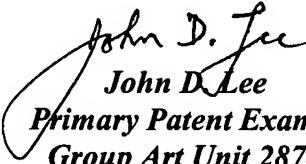
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,185,846 to Basavanhally et al describes a grooved optical fiber array wherein lateral groove spacing accuracy is 2 microns. U.S. Patent Application Publication 2002/0154882 A1 to Moran discusses another grooved optical fiber array wherein center-to-center groove spacing is within "a preselected tolerance value".

All of the prior art documents cited by applicant in the Information Disclosure Statement filed on July 10, 2006, have been considered and made of record. Note the attached initialed copy of form PTO-1449.

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Applicant's arguments filed on July 6, 2006, have been fully considered, but are moot in view of the new ground(s) of rejection presented above.

Any inquiry concerning the merits of this communication should be directed to Examiner John D. Lee at telephone number (571) 272-2351. The Examiner's normal work schedule is Tuesday through Friday, 6:30 AM to 5:00 PM. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562, to the technical support staff supervisor (Team 8) at telephone number (571) 272-1564, or to the Technology Center 2800 Customer Service Office at telephone number (571) 272-1626.


John D. Lee
Primary Patent Examiner
Group Art Unit 2874